

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>H1020222 PCT</b>	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/JP03/03500</b>	International filing date (day/month/year) <b>24. 03. 2003</b>	Priority date (day/month/year) <b>26. 03. 2002</b>
International Patent Classification (IPC) or national classification and IPC <b>Int. C17 H01L 31/04, H01L 21/368</b>		
Applicant <b>HONDA GIKEN KOGYO KABUSHIKI KAISHA</b>		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 3 sheets, including this cover sheet.  
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

Form PCT/IPEA/409 (cover sheet) (July 1998)

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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP03/03500

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages 1, 3-6, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages 2, 2/1, 7, filed with the letter of 11.03.2004
- ☒ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages 2-4, 6, 8, 10, filed with the letter of 11.03.2004
- ☒ the drawings:  
 pages 1-4, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, Nos. 1, 5, 7, 9
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP03/03500

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>2-4, 6, 8, 10</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>2-4, 6, 8, 10</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>2-4, 6, 8, 10</u>	YES
	Claims		NO

## 2. Citations and explanations

## Documents

- 1 : Huang et al, Solar Energy Materials & Solar Cells 69 (2001) 131-137,  
"Study of Cd-free buffer layers using In.(OH,S), on CIGS solar cells"
- 2 : Bayon et al, Journal of Electrochemical Society, vol.145, No.8, August 1998, 2775-2779,  
"Preparation of Indium Hydroxy Sulfide In.(OH)<sub>2</sub>S<sub>2</sub> Thin Films by Chemical Bath Deposition"
- 3 : Hariskos et al, Solar Energy Materials & Solar Cells 41/42 (1996) 345-353,  
"A novel cadmium free buffer layer for Cu(In,Ga)Se<sub>2</sub> based solar cells"
- 4 : Nakada et al, IEEE Transactions on electron devices, vol.46, No.10, October 1999, 2093-2097,  
"High-efficiency Cadmium-free Cu(In,Ga)Se<sub>2</sub> thin-film solar cells with chemically deposited ZnS buffer layers"
- 5 : Hashimoto et al, Solar Energy Materials and Solar Cells 50 (1998) 71-77,  
"Chemical bath deposition of CdS buffer layer for CIGS solar cells"
- 6 : EP 8 375 11 A (Matsushita Electric Industrial Co., Ltd.)  
1998. 04. 22
- 7 : JP 7-240385 A (KABUSHIKI KAISHA EBARASEISAKUSHO)  
1995. 09. 12

1. The above cited references do not disclose the example of controlling a temperature or a pH value of an aqueous solution for forming a buffer layer by the CBD method according to a profile as described in claims 2 and 4 of the present application.
2. The above cited references do not disclose the example of forming a buffer layer to have a structure of deposits of particle sizes or pH values as defined in claims 2 and 4 of the present invention.